

**REMARKS*****Election / Restrictions***

Applicants hereby elect group II containing claims 38-74,  
with traverse as set forth below.

5 Applicants hereby elect the purported species for kernel  
partial least square machine learning.

Within elected group II, the claims which encompass the  
elected species are as follows: 38-41, 46-50, 53-54, 57-59, 61-  
65, and 67-69.

10 Within non-elected group I, the claims which encompass the  
elected species are as follows: 1-4, 9-13, 16-17, 20-22, 24-28,  
and 30-32.

***Traversal***

15 Applicants traverse all restrictions, and hereby request  
reconsideration and withdrawal of the restriction requirements.  
The reasons for this traversal, are set forth below. We first  
traverse the group restriction. Then we traverse the species  
restrictions.

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**Traversal of the group restriction:**

Examiner states that "[t]he inventions listed as Groups I  
and II do not relate to a single general inventive concept under  
PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same

or corresponding special technical features for the following reasons: Group I relates to a method concept and Group II relates to an apparatus concept."

37 C.F.R. § 1.475(b) states: ". . . a national stage  
5 application containing claims to different categories of invention will be considered to have unity of invention if the claims are drawn only to one of the following combinations of categories: . . . (4) A process and an apparatus or means specifically designed for carrying out the said process." PCT  
10 Rule 10.12 similarly states that "[t]he method for determining unity of invention under Rule 13 is construed as permitting, in particular, the inclusion of any one of the following combinations of claims of different categories in the same international application: . . . (ii) *in addition to an*  
15 *independent claim for a given process, an independent claim for an apparatus or means specifically designed for carrying out the said process.*"

MPEP § 1893.03(d) states: "An apparatus or means is specifically designed for carrying out the process when the  
20 apparatus or means is suitable for carrying out the process *with the technical relationship being present* between the claimed apparatus or means and the claimed process. The expression specifically designed does not imply that the apparatus or means could not be used for carrying out another process, nor does it

imply that the process could not be carried out using an alternative apparatus or means.” Independent claims 1 is an independent claim for a process, and claims 38 is for an apparatus to carry out this process, squarely within the foregoing definitions.

As further stated in C.F.R. §1.475(a) which substantially repeats PCT Rule 13.2: “the requirement of unity of invention shall be fulfilled only when there is a *technical relationship among those inventions involving one or more of the same or* corresponding special technical features. The expression ‘special technical features’ shall mean those technical features that define a contribution which each of the claimed inventions, considered as a whole, makes over the prior art.”

Specifically, 37 CFR § 1.476(d) states that “[l]ack of unity of invention may be directly evident before considering the claims in relation to any prior art, or after taking the prior art into consideration, as where a document discovered during the search shows the invention claimed in a generic or linking claim lacks novelty or is clearly obvious, leaving two or more claims joined thereby without a common inventive concept.”

Detailed unity of invention practice is specified by Chapter 10 of the *PCT International Search and Preliminary Examination Guidelines (March 25, 2004)* (“PCT Guidelines”),

<http://wipo.int/export/sites/www/pct/en/texts/pdf/ispe.pdf>.

Section 10.03 of these PCT Guidelines states:

“Lack of unity of invention may be directly evident ‘*a priori*,’ that is, before considering the claims in relation to any prior art, or may only become apparent ‘*a posteriori*,’ that is, after taking the prior art into consideration. For example, independent claims to A + X, A + Y, X + Y can be said to lack unity *a priori* as there is no subject matter common to all claims. In the case of independent claims to A + X and A + Y, unity of invention is present *a priori* as A is common to both claims. However, if it can be established that A is known, there is lack of unity *a posteriori*, since A (be it a single feature or a group of features) is not a technical feature that defines a contribution over the prior art.”

Turning now to the present case, as stated above, independent claims 1 is an independent claim for a process, and claims 38 is for an apparatus to carry out this process, and so are considered to contain unity of invention so long as they contain “one or more of the same or corresponding special technical features.” The claims under restriction, are those filed with application PCT/US04/21,307 on July 1, 2004. In both the international search report (ISR) issued on February 9, 2005 and the International Preliminary Report on Patentability (IPRP) issued on August 1, 2005, all of the claims now under

restriction were found to contain unity of invention. In addition, in the IPRP, *all of the claims now being placed under restriction were found to meet the requirements of novelty, inventive step and industrial applicability under Article 33(1)*

5 PCT. As a result of this, absent some prior art finding to the contrary, applicants remain entitled to this presumption of novelty and non-obviousness, and to date, examiner has not made reference to any prior art whatsoever. Copies of both the ISR and the IPRP have been included with this reply, for examiner's  
10 convenience, and applicants' counsel hereby certifies that these are true copies of those reports.

In this action, a restriction is being imposed as between a process (claim 1) and an apparatus or means specifically designed for carrying out the said process (claim 38). Both 37  
15 C.F.R. § 1.475(b) and PCT Rule 10.12 are quite explicit that unity of invention permits "in addition to an independent claim for a given process, an independent claim for an apparatus or means specifically designed for carrying out the said process." This is precisely what is presented here. Clearly, as required  
20 by MPEP § 1893.03(d), applicants' "apparatus or means is specifically designed for carrying out the process" because applicants' "apparatus or means is suitable for carrying out the process *with the technical relationship being present between the claimed apparatus or means and the claimed process.*"

It is incomprehensible in light of this, that examiner gives as the "reason" for restriction, nothing more than that "Group I relates to a method concept and Group II relates to an apparatus concept." This is in direct conflict with both 37 C.F.R. § 1.475(b) and PCT Rule 10.12, which clearly provide that claims to a process and an apparatus for carrying out that process do contain unity of invention, so long as they also contain "common technical features."

As regards common technical features, as noted earlier, "[l]ack of unity of invention may be directly evident before considering the claims in relation to any prior art, or after taking the prior art into consideration." In the present case, examiner has cited no prior art whatsoever. In addition, as noted before, the IPRP found that all of the claims now being placed under restriction were found to meet the requirements of novelty, inventive step and industrial applicability under Article 33(1) PCT, and so applicants have in their favor a presumption that applicants' invention contains special technical features that "define a contribution which each of the claimed inventions, considered as a whole, makes over the prior art." Therefore, without any prior art citation by examiner, the only possibility is that examiner is asserting a lack of unity "*a priori*" under PCT Guidelines Section 10.03, i.e., "before considering the claims in relation to any prior art"

under 37 CFR § 1.476(d).

If this is so, it is troubling that examiner has failed to state this, or to make any statements in relation to the prior art and common technical features, thus leaving it to applicants  
5 to guess at the real motivations for issuing this restriction.

But in any event, such a "a priori" restriction - if that is what is being asserted - is simply not supported by the claims.

Claim 1 recites "A method for classifying cardiography data, comprising the step of: *applying a kernel transform to sensed*

10 *data acquired from sensors sensing electromagnetic heart activity, resulting in transformed data, prior to classifying said transformed data using machine learning.*" Claim 38 recites

"An apparatus for classifying cardiography data, comprising computerized storage, processing and programming for: *applying a*

15 *kernel transform to sensed data acquired from sensors sensing electromagnetic heart activity, resulting in transformed data, prior to classifying said transformed data using machine*

*learning.*" The language setting forth the special technical features in these two claim is absolutely identical. It is

20 impossible to see how these claims can be regarded, a priori, as having no common subject matter. And according to the IPRP, these claims do indeed specify common special technical features that define an invention over the prior art.

Finally, it is important to also point out section 10.04 of

the PCT Guidelines, which states that "although lack of unity of invention should certainly be raised in clear cases, it should neither be raised nor persisted in on the basis of a narrow, literal or academic approach. There should be a broad, practical consideration of the degree of interdependence of the alternatives presented, in relation to the state of the art as revealed by the international search . . . *If . . . there is a single general inventive concept that appears novel and involves inventive step, then objection of lack of unity does not arise.*

For determining the action to be taken by the examiner . . . rigid rules cannot be given and each case is considered on its merits, the benefit of any doubt [i.e., the legal presumptions] being given to the applicant."

Based on the IPRP, applicants' invention certainly contains a single general inventive concept which appears to be novel and to involve inventive step, and which has this presumption as a result of the IPRP. Thus, objection of lack of unity does not arise, and the benefit of the doubt is to be given to applicants. That is, based on the IPRP sustaining all of applicants' claims for novelty and inventive step, there is at least a *prima facie* appearance, and a legal presumption in applicants' favor, that the claims which are the subject of this restriction are novel and inventive. Thus, any objection of lack of unity does not arise, and it is clear that on this



matter, the benefit of the doubt belongs to applicants.

Consequently, there is absolutely no basis whatsoever in law of in fact for issuing the group I and II restriction, and applicants' counsel is frankly mystified how such a facially-  
5 defective restriction could have been issued here.

Based on the foregoing, applicants respectfully request withdrawal of this totally unfounded group restriction.

Again, it is finally noted that all of these claims were considered by both the ISA and the IPEA, and that neither raised  
10 any questions whatsoever with respect to unity of invention.

**Traversal of Species Restrictions:**

37 CFR 1.475(e), see also MPEP § 1893.03(d), states: "The determination whether a group of inventions is so linked as to  
15 form a single general inventive concept shall be made *without regard to whether the inventions are claimed in separate claims or as alternatives within a single claim.*"

Therefore, with regard to the various dependent claims which have been subjected to species restriction, the basic test for  
20 unity of invention remains whether "there is a technical relationship among those inventions involving one or more of the same or corresponding special technical features." This is the same basic test specified in Section 10.03 of the PCT Guidelines, as discussed above.

25 In particular, section 10.07 of the PCT Guidelines, which

apply to the species restriction in the present case, state: "If the independent claims avoid the prior art and satisfy the requirement of unity of invention, no problem of lack of unity arises in respect of any claims that depend on the independent claims. In particular, it does not matter if a dependent claim itself contains a further invention."

MPEP 1893.03(d) states: "Note also the examples contained in Chapter 10 of the International Search and Preliminary Examination Guidelines which can be obtained from WIPO's web site ([www.wipo.int/pct/en/texts/gdlines.htm](http://www.wipo.int/pct/en/texts/gdlines.htm))," thus indicating that the examples in section 10 should be taken into account for guidance in issuing restrictions under unity of invention practice. Thus, the examples then given in section 10.07 do apply here, make clear that the species restriction as applied to applicant's dependent claims is improper.

Here, applicants' elected independent apparatus claim 38 is "for classifying cardiography data, comprising computerized storage, processing and programming for: applying a kernel transform to sensed data acquired from sensors sensing electromagnetic heart activity, resulting in transformed data, prior to classifying said transformed data using machine learning." As discussed earlier, the IPER found that this independent claim avoids the prior art and satisfies the requirement of unity of invention, and examiner has provided no prior art or other basis here for finding any differently. Now, let us consider one of the restricted claims, *for example not limitation*, claim 56, which directly depends upon claim 38, but

which adds the recitation "classifying said transformed data using a direct kernel principal component analysis (DK-PCA)."

Following the "turbine rotor blade shaped in a specified manner" used as an example in section 10.07 of the PCT

5 Guidelines, either "classifying said transformed data using a . . . DK-PCA" is "new and . . . not obvious and thus . . . already contains the essential features of an independent possibly later patentable invention, or [although this is] not new, its application in respect of ["applying a kernel transform to sensed  
10 data acquired from sensors sensing electromagnetic heart activity" is] not obvious, and thus represents an independent invention in conjunction with" so-applying a kernel transform.

While we have selected claim 38 as an example, this logic applies equally, without limitation, to all of the other  
15 dependent claims subject to species restriction, both among the elected apparatus claims 38-74, and among the non-elected method claims 1-37.

Consequently, there is no proper basis for the species restrictions, the species restrictions are traversed, and  
20 applicants respectfully request reconsideration and withdrawal of these species restrictions.

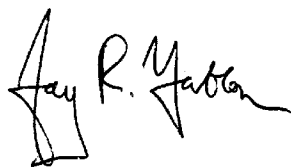
Additionally, applicants traverse the species restrictions under section 10.04 of the PCT Guidelines, as being issued "on the basis of a narrow, literal or academic approach." There is  
25 not provided by examiner any "broad, practical consideration of

the degree of interdependence of the alternatives presented, in relation to the state of the art as revealed by the international search" and by the IPRP. Indeed, the IPRP establishes that there is "a single general inventive concept  
5 that appears novel and involves inventive step." Thus, "objection of lack of unity does not arise. For determining the action to be taken by the examiner . . . rigid rules cannot be given and each case is considered on its merits, the benefit of any doubt being given to the applicant."

10       Once again, based on the IPRP, applicants enjoy a presumption of novelty and inventive step which examiner has not rebutted, and so traverse the restriction.

Applicants therefore look forward in the near future to an office action on the merits, following withdrawal of all  
15 restrictions as to both group and species, which includes an examination of all of claims 1-74 as presented.

Respectfully submitted,

A handwritten signature in black ink, reading "Jay R. Yablon". The signature is fluid and cursive, with the first name "Jay" and last name "Yablon" clearly legible, and "R." in the middle.

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